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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,667	04/13/2001	Richard B. Ertel	907.0007USU (SL-068)	5630
29683	7590	11/17/2004	EXAMINER	
HARRINGTON & SMITH, LLP 4 RESEARCH DRIVE SHELTON, CT 06484-6212			CHANG, RICHARD	
			ART UNIT	PAPER NUMBER
			2663	
DATE MAILED: 11/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/834,667	Applicant(s) ERTEL ET AL. 	
	Examiner Richard Chang	Art Unit 2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-9 and 11-17 is/are allowed.
- 6) ☒ Claim(s) 1 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 5,260, 689 ("Gardner et al.") in view of US patent 6,347,234 ("Scherzer").

Regarding Claims 1 and 10, Scherzer teaches a practical wireless communication systems and methods for enhancement by exploiting the spatial domain (a synchronous space division multiple access, code division multiple access communications system) (See Fig. 1) comprising of

assigning the same spreading code ~~is~~ inherent in IS-95 CDMA system , and the Scherzer system conforms with IS-95, to a plurality of subscriber stations within a coverage area to the base station (See Fig. 1, Col 7, lines 21-23),

a set of N despreaders (102) (a plurality of despreaders) for despreading the signals received from the desired subscriber stations (said plurality of subscriber stations) (See Fig. 1, Col 7, lines 15-18),

a beamformer (112) coupled the beamforming information via the controller (106) and each of the channel estimators (11) from outputs of a set of N despreaders (102) (said plurality of despreaders) to form narrow beams

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towards the signal parts associated with mobile units (for beamforming the despread received signals where the signals are received through) (See Fig. 1, Col 8, lines 12-21), and

a receiving antenna array (10 also read as 40 in Fig. 1) having N antenna elements sufficiently spaced arranged in a wide aperture allowing the assignment of multi-antenna beams toward the incoming signal parts (a function of a size of an aperture of said antenna array) (See Fig. 1, Col 14, line 64 - Col 15, line 4).

Scherzer teaches substantially all the claimed invention but did not disclose expressly the particular application involving limitations of

“spaced apart by more than one-half wavelength from one another” and

“a function of a signal bandwidth to carrier frequency ratio”.

Gardner et al. teach a method and apparatus for multiplexing communications signals through blind adaptive spatial filtering where an antenna array of M elements which are typically separated by approximately one half of the wavelength (spaced apart by more than one-half wavelength from one another) corresponding to the highest frequency in the reception band (said spacing ... a function of a signal bandwidth to carrier frequency ratio) (See Fig. 3, Col 6, lines 4-8).

A person of ordinary skill in the art would have been motivated to employ Gardner et al. in Scherzer in order to obtain a practical wireless communication systems and methods for enhancement by exploiting the spatial domain and to take advantage of an antenna array of M elements which are typically separated

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by approximately one half of the wavelength corresponding to the highest frequency in the reception band in claims 1 and 10.

The suggestion/motivation to do so would have been to accommodate practical wireless communication systems and methods for enhancement by exploiting the spatial domain and to take advantage of an antenna array of M elements which are typically separated by approximately one half of the wavelength corresponding to the highest frequency in the reception band in claims 1 and 10. At the time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Gardner et al. with Scherzer to obtain the inventions specified in claims 1 and 10.

Allowable Subject Matter

3. Claims 2-9 and 11-17 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chang whose telephone number is (571) 272-3129. The examiner can normally be reached on Monday - Friday from 8 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T Nguyen can be reached on (571) 272-3126. The fax phone

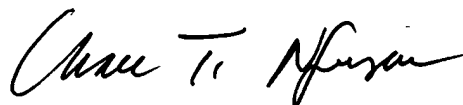
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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RKC
rkc

Richard Chang
Patent Examiner
Art Unit 2663



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